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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,979	09/20/2001	Jang Jin Yoo	041501-5452	1915

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MORGAN LEWIS & BOCKIUS LLP  
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WASHINGTON, DC 20004

EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT PAPER NUMBER

2871

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/955,979

**Applicant(s)**

YOO ET AL.

**Examiner**

Prasad R Akkapeddi

**Art Unit**

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-102)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/23/2004 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,4-8,10, and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto et al. (Kishimoto) (U.S. Patent No. 6,396,559) in view of Kume et al. (Kume) (U.S. Patent No. 6,115,098).

As to claims 1 and 4: Kishimoto discloses a liquid crystal display device (Fig. 1) comprising an insulating film (overcoat layer 104, of an acrylic or an epoxy resin col. 4, lines 34-35. Note: the layer 1004 in Fig. 16 is similar to the layer 104 in Fig. 1) on a first substrate (101), a first electrode (105) having a plurality of slit patterns directly contacting the insulating film (104), a light-

shielding layer (102), that is also a black matrix (BM) below the first electrode (105) and the slit patterns, a second electrode (121) on a second substrate (120), a liquid crystal layer (9) between the first (101) and the second (120) substrates.

Kishimoto teaches that with a voltage application, there will be only one orientation axis in each liquid crystal region (9) which then has only one axially symmetric orientation region "multi-domain" (col. 15, lines 20-23).

Although Kishimoto teaches each region having axially symmetric orientation and having multi-domains, Kishimoto does not elaborate the axially symmetry.

Kume in disclosing a liquid crystal device having slit patterns in the first electrode and having axial symmetry of the molecules (Fig. 1A and col. 11, lines 12-34), teaches that axial symmetry refers to several different orientations of the liquid crystal molecules (col. 10, lines 35-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the definition of axial symmetry as taught by Kume to the axially symmetric nature of the molecules as taught by Kishimoto to widen the viewing angle that is suitable for use in flat display in a personal computer, a word processor, a TV set or the like (col. 1, lines 8-12).

As to claims 5: Kishimoto discloses the first electrode (105) is a transparent electrode of ITO, a transparent conductive material (col. 16, line 8)

As to claim 6: Kishimoto discloses that the second electrode (121) is made of ITO, a transparent conductive material (col. 16, line 21).

As to claim 7: Kishimoto discloses that the insulating film (104) is on the entire surface of the first substrate (Fig. 1).

As to claim 8: Kishimoto a method for producing a liquid crystal display (col. 16, lines 33-67 and col. 17, lines 1-38 and Figs. 2A-2F) comprising forming a black matrix (light shielding layer 102) on the first substrate (101) (Fig. 2A), forming an overcoat layer (104) on the entire first substrate and the black matrix (Fig. 2C), forming a first electrode (105) having a plurality of slit patterns (Fig. 2D), forming a second electrode (121) (Fig. 2E), forming a liquid crystal layer (9) (Fig. 2F) and the assembly of the first and second substrates (col. 17, lines 10-11).

Kishimoto teaches that with a voltage application, there will be only one orientation axis in each liquid crystal region (9) which then has only one axially symmetric orientation region "multi-domain" (col. 15, lines 20-23).

Although Kishimoto teaches each region having axially symmetric orientation and having multi-domains, Kishimoto does not elaborate the axially symmetry.

Kume in disclosing a liquid crystal device having slit patterns in the first electrode and having axial symmetry of the molecules (Fig. 1A and col. 11, lines 12-34), teaches that axial symmetry refers to several different orientations of the liquid crystal molecules (col. 10, lines 35-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the definition of axial symmetry

as taught by Kume to the axially symmetric nature of the molecules as taught by Kishimoto to widen the viewing angle that is suitable for use in flat display in a personal computer, a word processor, a TV set or the like (col. 1, lines 8-12).

As to claim 10: Kishimoto teaches that the light -shielding layer (black matrix, 102) is formed below each slit pattern (Fig. 1).

As to claims 12: Kishimoto discloses the first electrode (105) is a transparent electrode of ITO, a transparent conductive material (col. 16, line 8)

As to claim 13: Kishimoto discloses that the second electrode (121) is made of ITO, a transparent conductive material (col. 16, line 21).

As to claim 14: Kishimoto discloses that the insulating film (104) is on the entire surface of the first substrate (Fig. 1).

As to claims 15-17: Kishimoto discloses that the first electrode (105) and the light-shielding layer (black matrix 102) are within a same pixel region. Note: Kishimoto defines a pixel region consists of a set of R,G,B color resin layers (col. 13, line 52) and it can be seen that the pixel region is shown in its entirety in Fig. 1, hence the first electrode and the light-shielding regions are within the same pixel unit, as disclosed by Kishimoto.

***Allowable Subject Matter***

4. Claims 2, 9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

A search of the prior art did not disclose a liquid crystal display device or a method of fabricating such a device wherein *the light-shielding layer is formed below either the middle portion of the first electrode or the middle portions of both the first electrode and the slit patterns.*

***Response to Arguments***

5. Applicant's arguments, see remarks, filed 03/23/2004, with respect to the rejection(s) of claim(s) 1, 2 and 4-17 under 35 U.S.C. 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kishimoto in view of Kume.

Art Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 571-272-2285. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

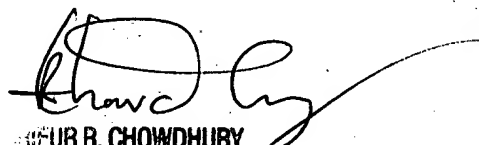
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Prasad R Akkapeddi, Ph.D  
Examiner  
Art Unit 2871

PRA

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R. R. CHOWDHURY  
PRIMARY EXAMINER